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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,163	01/04/2002	Shigeki Ogura	2001-1805A	1761

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WENDEROTH, LIND & PONACK, L.L.P.
2033 K STREET N. W.
SUITE 800
WASHINGTON, DC 20006-1021

EXAMINER

COURSON, TANIA C

ART UNIT PAPER NUMBER

2859

DATE MAILED: 03/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/035,163

Applicant(s)

OGURA, SHIGEKI

Examiner

Tania C. Courson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda (JP-2000097786 A) in view of Brownlow (US 5,787,213).

Matsuda discloses a sensor including the following:

- a) a strain sensor member (Fig. 7, sensor 15) having a strain sensing section (Fig. 7, strain part 16) for receiving stress in a longitudinal direction (Fig 7), a fiber Bragg grating (Fig. 7, FBG 4) fastened to the strain sensor member within the strain sensing section (Fig. 7), having a first end oriented in the longitudinal direction and a second end (Fig. 7), and;
- b) wherein the strain sensor member has a form of a plate of constant thickness, including the strain sensing section as a central section , further including a pair of stress-transmitting appendages joined to longitudinally opposite sides of the strain sensing section, by which said stress is applied to the strain sensing section (Fig. 7);
- c) wherein the strain sensing section has a constant width in the lateral direction (Fig. 7);

- d) wherein the stress-transmitting appendages are wider than the strain sensing section in the lateral direction (Fig. 7);
- e) wherein the stress-transmitting appendages and strain sensing section form an H shape (Fig. 7);
- f) wherein the strain sensing section has a tapered shape (Fig. 1);
- g) wherein the stress-transmitting appendages are at least as wide, in the lateral direction, as the sides of the strain sensing section to which they are joined (Fig. 1), and;
- h) wherein the width of the strain sensing section decreases continuously from one of said longitudinally opposite sides to another one of said longitudinally opposite sides (Fig. 1).

Matsuda does not disclose a fiber bragg grating having a second end oriented in a lateral direction perpendicular to a longitudinal direction and a fiber axis describing one quarter of a circular arc between a first end and the second end.

Brownlow teaches an optical fiber that consists of a fiber bragg grating having a second end oriented in a lateral direction perpendicular to a longitudinal direction (Fig. 2 and column 2, lines 61-62) and a fiber axis describing one quarter of a circular arc between a first end and the second end (Fig. 2). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the sensor of Matsuda, so as to include a fiber bragg grating having a second end oriented in a lateral direction perpendicular to a

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longitudinal direction and a fiber axis describing one quarter of a circular arc between a first end and the second end, as taught by Brownlow, so as to provide a means for the strain to be precisely controllable.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The prior art cited on PTO-892 and not mentioned above disclose fiber bragg grating sensors:

Fernald et al. (US 6,452,667 B1)

Lemaire et al. (US 5,841,920)

Meltz et al. (US 5,061,032)

Szuchy (US 4,734,577)

Barlow (US 4,401,363)

Curtis (EPO-0357253)

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tania C. Courson whose telephone number is (703) 305-3031.

The examiner can normally be reached on Monday-Friday from 8:00AM to 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez, can be reached on (703) 308-3875. The fax number for this Organization where this application or proceeding is assigned is (703) 308-7724.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



DIEGO F.F. GUTIERREZ
SUPERVISORY PATENT EXAMINER
GROUP ART UNIT 2859

TCC
March 21, 2003